

Amendments to the Specification

Page 26, lines 7-18, please amend the paragraph as follows:

AI
In optical up-converter (180), an array 181 of optical receivers 182-185 (see figure 23) convert a multitude of multicarrier return light beams in respective optical paths 170-174 into a corresponding multitude of electronic return signals in respective input electronic paths or conductors 190-198. Thus, the same information signals that modulate carrier signals that modulate the light beams in input optical paths 170-174, also modulate carrier signals that modulate current (or potential) in input conductors 190-198, the carrier signals having the same frequencies in the input optical paths as in the input conductors. An array 200 of electronic up-converters 201-204 (see figure 4) convert the multicarrier electronic return signals in input conductors 190-198, modulated by carrier signals in a lower frequency range, into multicarrier electronic return signals in input conductors 205-208 modulated by carrier signals of a higher frequency. That is, each return information signal that modulates a carrier signal in conductors 190-198, also modulates a higher frequency carrier signal in conductors 205-208.

Page 27, lines 6-14, please amend the paragraph as follows:

AD
An array 209 of optical transmitters 210-214 (see figures 32) convert each multicarrier return electronic current signal carrying the higher frequency carrier signals carrying return information signal in conductors 205-208 into a corresponding multicarrier return light beam carrying the same higher frequency carrier signals carrying the same return information signals in respective output optical paths 215-219. Each return light beam in optical paths 214-219 has a different respective optical wavelength with sufficient spacing

A2
between the wavelengths for subsequently separating the light beam using a DWDM after they are combined into the same common optical fiber. Preferably, the wavelength of the light beams in paths 215-219 are between 1220 and 1360 nm or between 1480 and 1620 nm.

Page 27, lines 15-23, please amend the paragraph as follows:

A3
The optical up-converter 180 may also includes DWDM 220 which combines a all the optical signals (light beams) in optical paths 215-219 into a single common optical path 221. Output coupler (222) connects common fiber (223) to output optical path (221). Controller 225 controls the conversion of frequencies in electronic up-converters 201-204 and controls the wavelength of laser transmitters 210-214. In addition, (not shown) the controller may control the connections between the optical receivers 182-185 and electronic up-converters 201-204 and/or between electronic up-converters 201-204 and laser transmitters 210-214 in order to provide flexibility and rerouting around failed components such as failed laser transmitters. The controller may control various portions of the receivers end transmitters as described below with reference to figures 2 and 3.

Page 27, lines 24-29, please amend the paragraph as follows:

A4
At the head-end, ~~VWDM~~DWDM 204 separates the multiple light beams from common optical fiber 223 and routes a single respective light beam into each one of single optical paths 241-242. An array 243 of receivers 244-245 convert the return light beams in respective optical paths 241-242 into respective electronic return signals in respective optical paths 246-247. The electronic return signals contain the same carrier signals modulated by the same information signals as the respective optical return signals.

Page 37, lines 17-30, please amend the paragraph as follows:

AS
In figure 1, HFCN 134 includes a WDM ~~170700~~ to separate the analog broadcast optical signal from the forward digital signal. Separate receivers ~~171701~~ and ~~172702~~ are used for each respective signal to convert the optical signals to electronic signals. Separate receivers allows post-processing the forward digital electronic signal before it is combined with the analog broadcast electronic signal. The post-processing may include shaping, post-distortion, and/or filtering e.g. filtering out of some of the distortions in the forward digital signals, so as to reduce noise in the analog broadcast signal. Essentially all second order distortions could be filtered out, if the range of carrier signal frequencies in each separated beam carrying the forward signals, is limited to less than an octave (e.g. 550-1100 MHz). More preferably, two light beams for forward digital signals are each limited to carrier frequency ranges of less than half an octave, so that, essentially all 4th order distortions could be filtered out (e.g. 550-835 MHz and 835-1260 MHz). Also, the narrower the carrier frequency band, the more third order distortions and higher order distortions can be filtered out. After post-processing combiner 703 combines the analog broadcast signals and forward digital signals into coaxial cable network 140.

Page 61, lines 4-15, please amend the abstract as follows:

Ab
A hybrid fiber cable network includes multiple nodes, each of which receives a first multi-carrier return signal from multiple customers with ~~the~~ carrier signals in a first frequency band. In a fiber-hub, one or more first multi-carrier signals are converted into a second multi-carrier signal with carrier signals in a second band. Each information signal ~~that modulates a carrier signal in one of the first signal~~ modulates a different higher frequency carrier signal in the second signal. A multitude of second multi-carrier signals are converted into respective

optical signals with different ~~respective~~ optical wavelengths, multiplexed together in a common onto an optical fiber, and transmitted back to the head-end. The first frequency band is ~~the same for all the nodes,~~ below 200 MHz, and preferably, from 5 to 50 MHz. The second frequency band is ~~different for different nodes,~~ above 200 MHz, and preferably, in portion of ~~the range~~ between 300 and 1200 MHz to reduce crosstalk due to stimulated Ramon scattering (SRS). Preferably, each second frequency band is no more than one octave wide, and more preferably, no more than one half an octave wide.
